GUAM EPA
TITLE V FEDERAL OPERATING PERMIT
STATEMENT OF BASIS

PowerSource Energy Services, Inc.
Guam Reef Hotel

Permit No. FO-021

Facility ID:	FO-021
Facility Name:	Guam Reef Hotel
Mailing Address:	1317 Pale San Vitores Road, "A", Tumon, Guam 96913
Responsible Official:	Frederick Lacroix
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I. Purpose

PowerSource Energy Services operates diesel generators to provide continuous power for the Guam Reef Hotel under the SIC 3621.

The purpose of this engineering evaluation is to identify all applicable requirements, determine if the facility will comply with those applicable requirements, and provide the legal and factual basis for proposed permit conditions.

II. Facility Location

The Guam Reef Hotel is located at 1317 Pale San Vitores Road, Tumon, Tamuning Guam.

III. Description of Facility Operations

The facility is a hotel. The facility operates diesel generators to provide continuous power for the hotel operations. The significant sources of emissions of air pollutants are three 1,000 kilowatt (kW) generators. There are no insignificant emission sources.

IV. Equipment Listing and Permitting History

IV.A. Significant Emission Units

A listing of all significant sources (type I) at the facility is presented in the table below.

Emission Unit Number	Unit Description	Associated Control Equipment
Gen-1	1,000 kW diesel-fired generator	N/A
Gen-2	1,000 kW diesel-fired generator	N/A
Gen-3	1,000 kW diesel-fired generator	N/A

IV.B. Insignificant Emission Units

The applicant noted in the permit application for this facility that there are no insignificant activities at the facility.

V. Potential to Emit

The annual potential to emit for each of the three significant emission units, and the annual potential to emit for the three units combined are presented below.

Emission Unit	Potential to Emit (tons/year)						
	NO_x	VOC	SO_2	PM_{10}	CO	Lead	HAPs
1 unit	106.2	9.7	15.2	19.8	48.3	--	--
3 units	213.2	19.4	30.6	39.8	96.9	--	--

VI. Guam Requirements

The following table lists the applicable requirements from the Guam Air Pollution Control Standards and Regulations (GAPCSR) and from the approved Guam State Implementation Plan (SIP). For rules where an applicability determination was required, a discussion is included below.

Reference	Topic
Section 1103.2	Guam Ambient Air Quality Standards
Section 1103.3	Visible Emissions
Section 1103.4	Fugitive Dust
Section 1103.10	Sulfur Oxides from Fuel Combustion
Section 1103.11	Open Burning
Section 1103.12	Control of Odors in Ambient Air
Section 1103.13	Asbestos
Section 1104	Permit Program Regulations
SIP, Section 7.5	Particulate Emissions from Fuel Combustion

VI.A. Particulate Matter (PM) Limits for Fuel Burning Equipment

Section 7.5 of the GEPA SIP requires that for fuel burning equipment between 1 MMBtu/hr and 1,000 MMBtu/hr in size, the allowable particulate emissions shall be calculated using the following equation:

$$Y = 1.02\ X^{-0.231}$$

Where:
Y = Allowable particulate emission rate (lb/MMBtu)
X = Operating rate (MMBtu/hr)

According to the application submitted for this project, the maximum design heat input rate for each 1,000 kW engine would be 9.05 MMBtu/hr. Therefore, each of the three diesel generators is subject to this limit. Using the formula listed above, the calculated PM limit for each engine is:

$$\text{Allowable PM emissions} = 1.02 \times (9.05\ \text{MMBtu/hr})^{-0.231}$$

$$= 0.613\ \text{lb/MMBtu}$$

VII. Federal Requirements

The following table lists the applicable requirements from United States Environmental Protection Agency (USEPA) regulations. For rules where an applicability determination was required, including rules that have been determined to be inapplicable to the proposed source, a discussion is included below.

Reference	Topic
40 CFR Part 61, Subpart M	Asbestos

VII.A. Prevention of Significant Deterioration (PSD)

The potential to emit listed above was provided by the applicant. For CO, NOx, PM10 and VOC, upper threshold emission factors provided in a memo from the proposed engine manufacturer Ningbo on January 21, 2009 were used. SO_2 emissions were calculated using an emission factor provided by in a separate emissions test report by Ningbo. The emissions data provided in this report were collected for a higher powered engine (1471 kW maximum power) compared to the engines to be installed at the Guam Reef Hotel (1000 kW each). To determine the "worst case" emissions, the SO_2 emission factor based on data collected when the larger engine was operated at a power (1103 kW) that most closely matched the maximum power of the Reef Hotel engines was used. These calculations assume that the three engines would operate on a schedule such that, at any one time, two engines would be on-line to provide continuous power (i.e., 8,760 hours/year). Whichever engine was off-line would serve as a standby unit and operate approximately five hours each month (i.e., 60 hours/year).

The federal Prevention of Significant Deterioration (PSD) program contains requirements for major new or modified sources of air pollution proposed in areas considered in attainment of the National Ambient Ai Quality Standards (NAAQS). The major source threshold for the proposed Guam Reef Hotel under the PSD program is 250 tons/year of any regulated pollutant.

Conditions have been added to the permit for this facility to ensure that emissions from the proposed facility remain below the PSD major source threshold. These conditions include a requirement to demonstrate compliance with the emission factors provided by the engine manufacturer, Ningbo. A requirement for annual source testing has been added to the permit for this purpose. Also, consistent with USEPA requirements regarding practical enforceability, equivalent limitations on total hours of operation and fuel usage for the engines have been added to the permit. The applicant has been provided the flexibility to demonstrate that either of these has been satisfied as a means of limiting emissions.

VII.B. Nonattainment Area Requirements

The area where this project is proposed to be located is designated as nonattainment of the NAAQS for SO_2. This designation was made as a result of modeling performed for the Tanguisson Power Plant, which indicated that there was a potential for exceedances of

the SO_2 NAAQS, especially during periods of on-shore winds. The description of the SO_2 nonattainment area in 40 CFR 81.353 is "(t)hat portion of Guam within a 3 1/2 km radius of the Tanguisson Power Plant." Guam EPA and USEPA are working with Pruvient Energy Guam, owners of the Tanguisson Power Plant, to address this nonattainment designation through a combination of limits on SO_2 emissions and monitoring to demonstrate that actual exceedances of the NAAQS are not occurring.

The proposed project is not a major source of SO_2 emissions, so no federal requirements would apply to this project. Guam EPA also believes that this project will not interfere with efforts to demonstrate attainment with the SO_2 NAAQS.

VII.C. Air Dispersion Modeling

At the request of Guam EPA, the applicant has provided air dispersion modeling for the engines to be located at the Guam Reef Hotel. Compliance with both the NAAQS and the PSD increments is required collectively for minor sources. In the application submitted for the project, the results of this modeling were shown to be lower than the NAAQS and PSD increments for each pollutant at each associated averaging time.

Based on modeling performed for this project, the proposed Guam Reef Hotel will not cause ambient air impacts that exceed either the NAAQS or the PSD increments.

VII.D. New Source Performance Standards (NSPS)

EPA has adopted a New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines in 40 C.F.R. Part 60, Subpart IIII. This NSPS generally applies to engines constructed, modified or reconstructed after the applicability date listed in this rule. This NSPS contains a special section in 40 C.F.R. 60.4215 for engines used on Guam, as listed below:

> ***"What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?***
>
> (a) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §60.4205. Non-emergency stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder, must meet the applicable emission standards in §60.4204(c).
>
> (b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207."

The proposed engines are not subject to the applicable emission standards in 40 C.F.R. 60.4205, because that section applies to emergency engines only used to provide power in the event of an emergency. Each of the three engines used will alternate as main power providers and standby units, so none is considered solely a standby or emergency engine. The proposed engines are also not subject to the requirements of 40 C.F.R. 60.4204(c), because the proposed engines would have a displacement less than 30 liters per cylinder. According to manufacturer documentation provided with the application, the displacement of these engines should each be approximately 27 liters per cylinder (calculated based on 161 L total displacement for 6 cylinders).

As a result, there are no requirements from the Stationary Compression Ignition Internal Combustion Engine NSPS that apply to the engines proposed for the Guam Reef Hotel.

VIII. Periodic Monitoring

Requirement	Requirement Condition #	Monitoring/ Recordkeeping Requirement	Monitoring/ Recordkeeping Condition #
PM_{10} limit for diesel generators	II.B.1.a	Annual source test	II.D.4
NO_x limit for diesel generators	II.B.1.b	Annual source test	II.D.4
SO_2 limit for diesel generators	II.B.1.c	Fuel sulfur content analysis and recordkeeping	II.D.7 and II.E.4
CO limit for diesel generators	II.B.1.d	Annual source test	II.D.4
HC limit for diesel generators	II.B.1.e	Annual source test	II.D.4
PM emission limit for fuel burning equipment	II.B.2	Annual source test and monthly opacity monitoring	II.D.4 and II.D.8
Opacity limits for fuel burning equipment	II.B.3	Monthly opacity monitoring	II.D.8
Preventative maintenance	II.C.1	Inspection and maintenance recordkeeping	II.E.2
Adequate control measures preventing air quality exceedences	II.C.2	N/A	N/A
Daily fuel usage and hours of operation limitation for diesel generators	II.C.3	Fuel consumption recordkeeping	II.E.1
Annual fuel usage and hours of operation limitation for diesel generators	II.C.4	Fuel consumption recordkeeping	II.E.1
Fuel sulfur content limit for diesel generators	II.C.5	Fuel sulfur content analysis and recordkeeping	II.D.7 and II.E.4
Fugitive dust restrictions	II.C.6 and II.C.7	Monthly opacity monitoring	II.D.8